The System: A Parts Checklist

If you look at a detailed District map of the regional water management system, you're likely to encounter some unfamiliar terms and structure designations. Following is an overview of the major components of the system.

Rivers and canals

Though many of the waterways we see today started life as natural rivers or streams, many were widened, deepened or lengthened as part of the Corps' regional water management design. Others were dug specifically for drainage and water conveyance purposes. Most of these major waterways have a designation of C, for canal. For example, C-51 is also known as the Palm Beach Canal and the Kissimmee River is also called C-38.

The waterways winding through south and central Florida communities serve a variety of purposes. They are liquid roads – providing passage across the region. Many are also part of important ecosystems and contribute to the region's economic well-being. These waterways help to protect water supplies and prevent saltwater intrusion. They also play a role in flood control, capturing direct rainfall as well as stormwater runoff. However, to serve these multiple needs, waterways can never be completely drained or completely filled. That means only a limited portion of the waterway's total capacity is readily available for flood control or water supply storage needs.

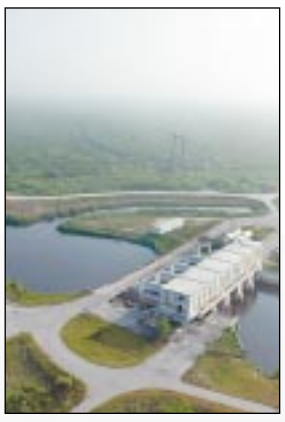
Businesses and communities line the banks of the Miami River (C-6) and connecting waterways.

Levees

A levee, typically designated with the letter L, is a long, narrow mound of soil and other stabilizing materials like rocks or concrete and plants that is built to contain water. Most of the large levees in the regional system have roads atop them. Many of the large waterways within the system have levees on both sides. Some, especially those adjacent to the Everglades and other natural systems, may have a levee only on the edge bordering developed land.

Pumping stations and water control structures

Because south Florida is essentially flat, water can only be moved in large quantities and/or against gravity and natural flow patterns, with the help of one or more of the 25 major pumping stations and hundreds of other structures located throughout the region.



S-5A is one of the world's largest pumping stations.

Water control structures funded and built as part of the C&SF project are identified with an S. System parts funded exclusively by the District are designated with a G. The largest pumping station in the system, S-5A, can move tens of millions of gallons of water in an hour! Hundreds of smaller pumping stations and other structures work together with the networks of canals, lakes and wetlands to hold and move billions of gallons of water within the system.

S-155A, a gated structure near the east coast on the West Palm Beach Canal (C-51).

At the coastline, gated spillways can be opened or closed to keep water levels in canals high enough to prevent saltwater intrusion, and low enough so that they can absorb the first few inches of rainfall. Most of these structures open from the bottom, and can be activated remotely from the District's headquarters in West Palm Beach. It's not always obvious when a gate is open, and gates cannot be opened when the tide is high and is pushing saltwater upstream.

Other structures including spillways, weirs and culverts are an essential part of the water management system.

Lakes

Natural lakes are most plentiful in the central part of the state. From the Kissimmee Upper Chain of Lakes to Okeechobee, the region's lakes provide wildlife habitat and surface water storage. South of Lake Okeechobee, many lakes are man-made, and are part of local stormwater management systems – providing short and long term water storage and flood control, as well as water quality benefits.

Lake Okeechobee, at 730-square miles, is the largest lake in the state, and the second largest freshwater lake located wholly within the United States. One inch of water in this massive lake would represent over 12 trillion gallons!

Lake Okeechobee is surrounded by a huge levee (the Herbert Hoover Dike) that averages 30 feet high. Water levels in the lake must be managed to protect the ecosystem and provide the flexibility to prevent catastrophic flooding, drought or environmental harm in other parts of the system.

Water conservation areas, parks and refuges

Another major ecosystem habitat and surface water storage component consists of three large natural Everglades wetland areas located in western Palm Beach, Broward and Miami-Dade counties. Called the Everglades Water Conservation Areas (WCAs), they cover 1,337 square miles – and are separated from one another – and from the development east of them, by large levees. The northernmost WCA is also known as the Arthur R. Marshall Loxahatchee National Wildlife Refuge. Together with Everglades National Park to the south, these lands preserve about 50% of the original Everglades. Plans for Everglades restoration will remove some of the barriers between the WCAs, and add land and water buffers between these natural areas and human development.

Tree islands, water and sawgrass characterize the WCAs.

Other large parks and natural areas are also part of the regional system, including the Florida Keys, the Big Cypress National Preserve and many other state and federal parks and preserves.

Wellfields and aquifers

Managing the flow and storage of surface water throughout the regional system helps bolster and replenish underground water supplies. Close to 90% of the drinking water used in south and central Florida comes from below the ground – from limestone or rock lined reservoirs that hold water. In some parts of the region, you can reach groundwater by digging less than 20 feet deep. In other parts of the region, wells must be dug much deeper. The "richest" aquifer in the region is the Biscayne – and serves most east coast communities from Fort Lauderdale to the south.

In most other parts of the region, smaller, isolated surficial aquifers are the primary source of drinking water. Many cities or counties draw water from several sources: surficial aquifers, oceans and bays and the Floridan Aquifer. The Floridan spans the state, but can be hundreds or thousands of feet deep. Water in this very deep aquifer is saltier than water in either surficial aquifers or the Biscayne. Sea water is even saltier. To be drinkable, water from many of these sources must be treated, and sea water requires the most costly treatment.